

NECROTIC FLECK OF EASTER LILY

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Necrotic fleck of Easter lily, *Lilium longiflorum* Thunburg, is a disease which occurs only when lily symptomless virus (LSV) and cucumber mosaic virus (CMV) are both present in the plant (1,6). Historically, necrotic fleck has been a major threat to Easter lilies wherever they are grown. Easter lilies are indigenous to China, Japan, and Okinawa. In the United States, lily production began about 1875 on the west coast and in Georgia using bulbs imported from Japan (4). Dickey (2) and Shippy (5) reported in separate accounts that an Easter lily bulb industry started in central Florida in the 1920's and died out in the late 1930's. Necrotic fleck in bulbs imported from Japan was primarily responsible for the failure of this industry (2,4,5). Easter lily production in Florida resumed during World War II because Japanese bulbs were unavailable (2), and grew sporadically until 1968-69, when 92 acres were producing over 7 million plants. Today this industry is valued at over 2 million dollars annually.

SYMPTOMS. Necrotic fleck symptoms usually appear first near the top of the plant when buds are forming. Flecks are variable in size and usually are elongated parallel to the veins. The lesions are chlorotic in the early stages of disease development but later become gray and brown (fig. 1). Plants are dwarfed, and the leaves curl downward. Flowers are small in size, fail to open fully, and are variously distorted with narrow brown streaks. Necrotic fleck-infected plants mature earlier and produce smaller bulbs than healthy plants (1,6).



Fig. 1. Necrotic fleck of Easter lily.

DISSEMINATION. Diseased bulbs have been important in the introduction of Easter lily viruses into Florida. Brierley (1) reported that a high proportion of necrotic fleck resulted when CMV was introduced into commercial Easter lilies, particularly in the Croft and Creole varieties, indicating that LSV was already present. Aphids serve as vectors and are an important means of disease spread in Florida during the growing season (6). The cotton aphid, *Aphis gossypii* Glover, can transmit the necrotic fleck virus complex to virus-free Easter lily seedlings, whereas *Macrosiphum solanifolii* Ashm. and the green peach aphid, *Myzus persicae* Sulz., can transmit CMV, but not LSV to virus-free seedlings (1).

CONTROL. The use of virus-free bulbs from reliable sources is important (3). The use of the Easter lily varieties 'Ace', 'Nellie White' (for bulb and potted plant production), and the Georgia bulb variety 'Arai' (for cut flowers), which reportedly show some resistance to necrotic fleck in Florida, is recommended. The use of varieties grown from seed in areas isolated from necrotic fleck-infested production areas can be helpful in controlling this disease. Early detection and roguing of plants showing symptoms of necrotic fleck also contributes to reducing its spread. Insecticides such as lindane for field-grown plants (6) and Temik for potted plants have shown promise for control of aphids. High phosphate insecticides and fertilizers have been reported to increase injury from necrotic fleck.

Literature Cited

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